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Wisconsin Department of Commerce

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Safety & Buildings Division
201 West Washington Avenue
P.O. Box 2658
Madison, WI 53701-2658

Wisconsin Building Products Evaluation

Material	DuraSpec™ Brand Expanded Polystyrene Insulation Boards
Manufacturer	Plymouth Foam, Inc. P.O. Box 407 1800 Sunset Drive Plymouth, WI 53073

SCOPE OF EVALUATION

General: This report evaluates the use of DuraSpec™ brand expanded polystyrene insulation boards, manufactured by Plymouth Foam Inc., in wall cavities, in roof assemblies, on metal roof decks, in the cores of concrete-block walls, in the cavities between block and brick or double-brick walls, in pre-cast panels, on the interior or exterior side of exterior walls, under slab, foundation and below-grade perimeter insulation. The DuraSpec™ expanded polystyrene manufactured by Plymouth Foam Inc., is the foam component in various brand series names beginning with Dura, Gold, and Ultra.

DESCRIPTION

Plymouth Foam, Inc. molds expanded polystyrene (EPS) foam plastic boards used as thermal insulation.

WISCONSIN COMMERCIAL BUILDING CODE

Refer to the ICC-ES Evaluation Report ESR2687 Issued July 1, 2009 for Evaluation Scope, Uses, Description, Installation, Conditions of Use, Evidence Submitted and Identification of this product as relating to the use of this product in the construction of commercial buildings (Copy Attached). The following address will take you to the ICC website where you can view the evaluation report.
http://www.icc-es.org/reports/pdf_files/ICC-ES/ESR-2687.pdf

Installation of DuraSpec™ brand expanded polystyrene insulation boards shall comply with the manufacturer's published installation instructions, the aforementioned evaluation report and this evaluation. In the event of a conflict between the manufacturer's instructions and the evaluations, the evaluations govern. The manufacturer's instructions shall be available on the jobsite at all times during installation.

The EPS insulation shall be manufactured using bead suppliers having current ICC-ES evaluation reports

In addition to the evaluation outlined by the above ICC-ES Evaluation Report, the DuraSpec(tm)™ brand expanded polystyrene insulation boards were evaluated for conformance with the requirements of **s. Comm 63.0102 (2) (b) c** as appropriate.

WISCONSIN UNIFORM DWELLING CODE

The code requirements below are found within the current **Wisconsin Uniform Dwelling Code for 1 & 2 family dwellings:**

- **Foam Plastic Material:** The DuraSpec™ brand expanded polystyrene insulation was evaluated in accordance with the fire safety requirements of **s. Comm 21.11**.
- **Thermal Performance:** The DuraSpec™ brand expanded polystyrene insulation was evaluated in accordance with the thermal performance requirements of **Chapter 22, Subchapter VI, ss. Comm 22.30 through 22.34**.

DESCRIPTION AND USE - WISCONSIN UNIFORM DWELLING CODE (UDC)

General: Plymouth Foam, Inc. molds expanded polystyrene (EPS) foam plastic boards used as thermal insulation. The EPS insulation shall be manufactured from expanded polystyrene beads that have listings with either the ICC Evaluation Service, Inc. (ICC-ES) or Underwriters Laboratories® (UL).

Installation of DuraSpec™ brand expanded polystyrene insulation boards shall comply with the manufacturer's published installation instructions and this evaluation. In the event of a conflict between the manufacturer's instructions and this evaluation, this evaluation governs. The manufacturer's instructions shall be available on the jobsite at all times during installation.

Plymouth Foam's DuraSpec™ brand expanded polystyrene insulation boards are nonstructural. The boards are 2 feet by 4 feet (610mm by 1219mm), 2 feet by 8 feet (610mm by 2438mm),), 4 feet by 4 feet (1219mm by 1219mm), 4 feet by 8 feet (610mm by 2438mm), and available in thickness up to 6 inches (152mm), with square or tapered edges. The expanded polystyrene insulation boards are Type 1, Type ll, Type Vlll and Type lX boards with a nominal densities of 1.0 pcf (16 kg/m^3), 1.25 pcf (20 kg/m^3), 1.5 pcf (25 kg/m^3), and 2.0 pcf (32 kg/m^3), respectively.

DuraSpec™ brand expanded polystyrene insulation boards are used in wall cavities, in roof assemblies, in the cores of concrete-block walls, in the cavities between block and brick or double-brick walls, in pre-cast panels, on the interior or exterior side of exterior walls, under slab, foundation and below-grade perimeter insulation.

The attachment of finish materials over the insulation board must provide a minimum 1-inch (25.4mm) penetration of the fasteners into wood framing. Wall covering over the insulation must be structurally adequate to resist the required horizontal forces perpendicular to the wall.

TESTS AND RESULTS - WISCONSIN UNIFORM DWELLING CODE (UDC)

Testing on Plymouth Foam's DuraSpec™ brand expanded polystyrene insulation boards as follows:

- Tested in accordance with **ASTM E84**.and all have a flame spread rating of 25 or less, and a smoke development of less than 450.
- Tested in accordance with **ASTM Standard C 203**, BREAKING LOAD AND FLEXURAL PROPERTIES OF BLOCK-TYPE THERMAL INSULATION (SECTION 11.6 of ASTM C578).
- Tested in accordance with **ASTM Standard C 272**, WATER ABSORPTION OF CORE MATERIALS FOR STRUCTURAL SANDWICH CONSTRUCTIONS (SECTION 11.8 of ASTM C 578).
- Tested in accordance with **ASTM Standard C303**, STANDARD TEST METHOD FOR DIMENSIONS AND DENSITY OF PREFORMED BLOCK AND BOARD-TYPE THERMAL INSULATION (SECTION 11.2 of ASTM C518).

- Tested in accordance with **ASTM Standard C 518**, THERMAL TRANSMISSION PROPERTIES BY MEANS OF THE HEAT FLOW METER APPARATUS (SECTION 11.4 of ASTM C 578) the EPS boards have the following thermal resistance (R-values):

EPS TYPE	MINIMUM DENSITY (pcf)	R-VALUE per INCH of THICKNESS ($^oF \cdot ft^2 \cdot h/Btu$)
I	0.90	3.6
II	1.35	4.0
VIII	1.15	3.8
IX	1.80	4.2

- Tested in accordance with **ASTM Standard D 1621**, COMPRESSIVE PROPERTIES OF RIGID CELLULAR PLASTICS (SECTION 11.5 of ASTM C 578).
- Tested in accordance with **ASTM Standard E 96**, WATER VAPOR TRANSMISSION OF MATERIALS (SECTION 11.7 OF ASTM C 578).
- Tested in accordance with **ASTM Standard D 2863**, OXYGEN INDEX (SECTION 11.10 OF ASTM C 578).
- Tested in accordance with **ASTM Standard D 2126**, RESPONSE of RIGID CELLULAR PLASTICS TO THERMAL AND HUMID AGEING (SECTION 11.9 of ASTM C 578).

All testing was preformed by Radco Inc., Listing and Testing Division, 3220 E. 59th St., Long Beach, CA 90805, under test report number RAD-2582.

LIMITATIONS OF APPROVAL – WISCONSIN UNIFORM DWELLING CODE (UDC)

Limitations: The specific limitations below are as required by the current **Wisconsin Uniform Dwelling Code for 1 & 2 family dwellings:**

- **Thermal Barrier:** The Plymouth Foam's DuraSpec™ brand expanded polystyrene insulation boards shall be separated from the interior of the building with a thermal barrier as required by **s. Comm 21.11 (1)**.
- **Thermal Performance:** Where Plymouth Foam's DuraSpec™ brand expanded polystyrene insulation boards are used to meet the thermal performance requirements of the **UDC,** it shall be used in conformance with **UDC Chapter Comm 22, Subchapter VI, ss. Comm 22.30 through 22.34**.

DISCLAIMER

The department is in no way endorsing or advertising this product. This approval addresses only the specified applications for the product and does not waive any code requirement not specified in this document.

EXPIRATION

This approval will be valid through December 31, 2015, unless manufacturing modifications are made to the product or a re-examination is deemed necessary by the department. The product approval is applicable to projects approved under the edition of the applicable codes that are in effect on the date of this approval. This approval may be void for project approvals made under future editions of the codes. The Wisconsin Building Product Evaluation number must be provided when plans that include this product are submitted for review.

Approval Date: February 10, 2010

By: _____
James B. Smith, P.E.
Program Manager
Bureau of Program Development